



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/723,966	11/26/2003	Martin Dionne	71624 CCD	9523

7590 12/28/2007  
Christopher C. Dunham  
c/o Cooper & Dunham LLP  
1185 Ave. of the Americas  
New York, NY 10036

EXAMINER

LEADER, WILLIAM T

ART UNIT	PAPER NUMBER
----------	--------------

1795

MAIL DATE	DELIVERY MODE
-----------	---------------

12/28/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/723,966	<b>Applicant(s)</b> DIONNE ET AL.	
	<b>Examiner</b> William T. Leader	<b>Art Unit</b> 1795	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 October 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 and 21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>6/25/2007</u> . | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 1, 2007, has been entered.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

### *Claim Rejections - 35 USC § 103*

3. Claims 1-8 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of Bergeron et al (CA 2 350 814 A1) and Townsend (5,227,045) for the reasons of record and in view of the following comments.

4. Applicant's Remarks have been carefully considered but are not deemed to be persuasive. At page 3 of the Remarks, applicant argues that the admitted prior art does not teach the combination of sufficient  $\text{TiB}_2$  to make the surface wettable by aluminum with any additive. This argument is not convincing. In the Background of the Invention portion of the specification, it is stated that "It has been known for

a number of years that cathodes can be made from a composite of a carbon-containing component and a metal boride, such as titanium diboride ( $\text{TiB}_2$ ). The  $\text{TiB}_2$  helps to protect the cathode against erosion and oxidation and makes the cathode wettable to aluminum." Thus, the admitted prior art does recognize the inclusion of sufficient  $\text{TiB}_2$  to make the surface wettable. As indicated in the previous office action, Townsend shows that the amount of  $\text{TiB}_2$  required to make the cathode wettable is known. Applicant argues that Bergeron discloses an amount of  $\text{TiB}_2$  that is less than the amount required to make the carbonaceous material wettable by molten aluminum. While this may be correct, one of ordinary skill in the art would be able to determine the amount of  $\text{TiB}_2$  necessary to achieve wettability. Bergeron shows that it is recognized that the cathode may be made by mixing  $\text{TiB}_2$  and additives which are precursors of  $\text{TiB}_2$ .

5. At page 4 of the Remarks, applicant argues that Bergeron et al provide substantially all the titanium diboride in the form of precursors which are reacted *in situ* so as to maximize <sup>cost</sup>~~cost~~ savings. The admitted prior art shows that all  $\text{TiB}_2$  may be provided as  $\text{TiB}_2$ , while Bergeron shows that most of the  $\text{TiB}_2$  may be formed from precursors *in situ* with a smaller amount of  $\text{TiB}_2$  being supplied directly. Choice of an amount of  $\text{TiB}_2$  between these two recognized values would have been obvious to one of ordinary skill in the art. By using an amount of additives less than the maximum, some amount of savings would have still been achieved.

6. At the bottom of page 4 of the Remarks, applicant discussed the Declaration under 37 C.F.R. §1.132. The Declaration is insufficient to overcome the rejection of the claims as set forth in the last Office action because it is not commensurate in scope with the claimed subject matter. The declaration includes one example corresponding to the claimed subject matter. The example utilized a single additive at a single concentration. In the example, a cathode was made from carbon-based material containing 35wt%  $\text{TiB}_2$  and a stoichiometrical mixture of  $\text{TiO}_2/\text{B}_2\text{O}_3$  equivalent to 15wt%. However, claim 1 recites an additive consisting of a combination of two intimately mixed compounds but does not specify what the compounds are. Additionally, claim 1 recites that the additive is present in an amount up to 25% by weight. Claim 1 is of a scope greater than that of applicant's evidence.

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will

Application/Control Number:  
10/723,966  
Art Unit: 1795

Page 5

the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William T. Leader whose telephone number is 571-272-1245. The examiner can normally be reached on Mondays-Thursdays and alternate Fridays, 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Susy Tsang-Foster can be reached on 571-272-1293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>.

Application/Control Number:  
10/723,966  
Art Unit: 1795

Page 6

Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



William Leader  
December 20, 2007



SUSY TSANG-FOSTER  
SUPERVISORY PATENT EXAMINER